# Sustainability: A LEED Case Study

Featuring the John I. Haas Innovations Center

KDA Architecture, Inc.
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# Haas Innovations Center

**LOCATION**
Yakima, WA

**OWNER**
John I Haas, Inc.

**GROSS SQUARE FEET**
23,705

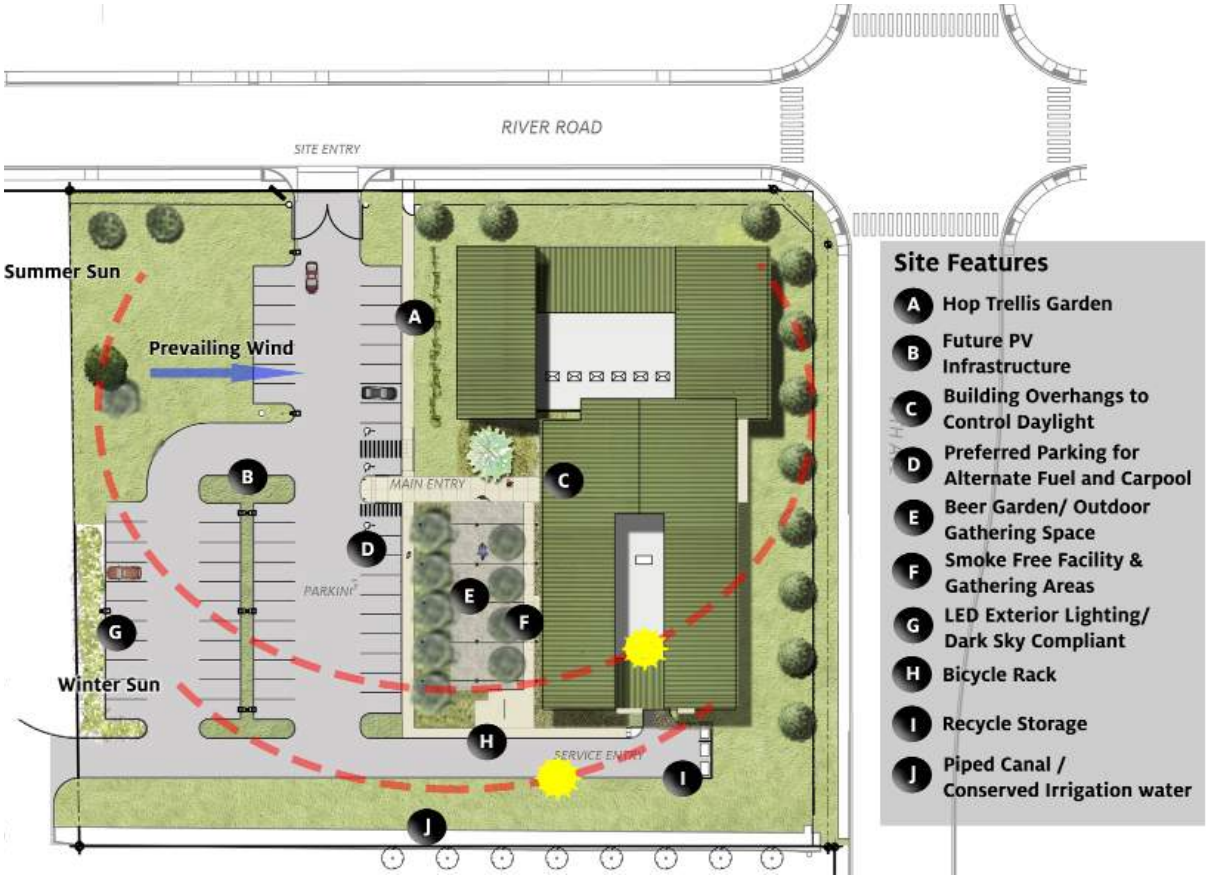
**BUILDING FOOTPRINT**
17,751

**COMPLETED**
2013

Haas Innovations Center is the first LEED Gold Certified building in the City of Yakima and acts as a resource, road map, and icon for other high efficiency developments in the area. It marks what many see as a growing trend toward the design of high performance buildings that not only leave light footprints on the environment, but also offer significant operational cost savings over the life of the building.

As the local face of John I. Haas, Inc., developing a sustainable energy efficient building was an important part of helping the community and their clients understand the Haas commitment to sustainable farming practices and to their core value of conserving natural resources.

John I. Haas, Inc. is the leading provider of hops in the United States and is part of the Barth-Haas Group that "Leads the world in the supply of hops, hop products, and services." Clients from all over the world will visit this new facility, see their product, sample beer produced with their unique breeds of hops, and work with their chemists and brewmaster to research innovative uses for hops and to craft new beer recipes.




## Inspiration

The Haas Innovations Center is composed of four primary sections—local administrative offices, a state-of-the-art research lab, fully automated research brewery, and an outdoor beer garden event center.

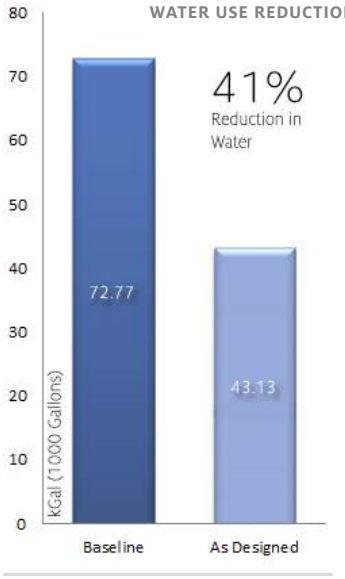
It was important to the client that the building draw inspiration from the company's agricultural hop farming roots but in a more timeless contemporary northwest style. The resulting, visually open, design celebrates daylight and views, and incorporates abstracted elements and ideas from a hop farm.

**LEED SITE CREDITS ACHIEVED 23/27***

| Construction Activity Pollution Prevention Required | |
|---|---|
| Site Selection | 2* |
| Development Density | 5 |
| Public Transportation Access | 6 |
| Bicycle Storage and Changing Rms | 1 |
| Low Emit/Fuel Efficient Vehicles | 3 |
| Parking Capacity | 2 |
| Maximize Open Space | 1 |
| Storm Water Quantity Control | 1 |
| Storm Water Quality Control | 1 |
| Heat Island Effect Roof | 1 |

*Includes regional priority credit

## Design and Sustainable Site




Sited on a prominent corner, the facility is oriented along a north south axis that allows the building to hug the busy adjacent street improving its visibility, improving the streetscape, and allowing the entrance and beer garden to be tucked on the opposite side so that they are visually and acoustically buffered from traffic. The main entrance also faces the adjacent facility, establishing a visual connection between their new research facility and the hop extract plant that represents the production side of their business.

On site parking was kept to the minimum allowable and five prominent spaces are reserved for carpool and high efficiency vehicles. The inclusion of a bicycle rack, company bicycles, showers, and lockers encourage employees to take advantage of biking as an alternative form of transportation. The nearby Greenway provides options for going out on a mid-day run, bike ride, or walk.

John I. Haas, Inc. expressed an interest in adding photovoltaic panels to the site in the future. To support this, large conduits were run from the parking lot into the building to allow installation of PV covered parking canopies when the price becomes more feasible.

Breweries and labs consume a lot of water. However, through the use of low flow fixtures, automatic faucets, and dual flush valve toilets, the estimated water use for this facility is 41% below standard use.

## Water Efficiency

**LEED WATER CREDITS ACHIEVED 5/12***

Water Use Reduction 20% Required

Water Use Reduction 40% 5*

*Includes regional priority credit

Although not applicable for LEED certification, another water saving feature was included in this project. During the summer, Yakima is a hot dry environment that relies heavily on irrigation. However, there is no significant source of funding for maintaining and repairing the existing irrigation lines. One of the resulting unrepaired irrigation canals ran along the south edge of the site. The canal was old, severely damaged, and leaking heavily; however, the irrigation district could not afford to repair it. A preliminary inspection estimated as much as 2% of the water was leaking into the ground. As part of the project, the damaged canal was removed and pipe installed. This saves irrigation water and eliminates safety issues surrounding a large, open, fast moving body of water.

## Energy and Atmosphere

**LEED ENERGY CREDITS ACHIEVED 15/35**

| | |
|---|---|
| Fundamental Commissioning Required | |
| Minimum Energy Performance Required | |
| Fundamental Refrigerant Mgmt. Required | |
| Optimize Energy Performance | 10 |
| Enhanced Commissioning | 2 |
| Measurement and Verification | 1 |
| Green Power | 1 |

A whole building energy model was used to calculate the expected energy use for the building. The energy model shows an estimated savings of 30.9% over a baseline building. A large portion of this savings is due to a high performance building envelope, use of energy efficient HVAC equipment and an energy recovery ventilator. The building envelope was improved by increasing the insulation by 150% of the code requirements, minimizing thermal bridging, the use of double thermally broken storefront and curtainwall systems, and triple pane glazing. The result is a significant annual savings that will reduce the cost of ownership for this facility.

Partnering with Pacific Power through their Blue Sky program, John I Haas Inc. also arranged for over 70% of their electricity to be generated by renewable energy facilities. Although this option comes at a premium, it illustrates the owner's commitment to sustainability.

30.9%
Annual Energy Savings

$15,243
Annual Energy Cost Savings

## Materials and Resources

**LEED MATERIALS CREDITS ACHIEVED 4/10**

Storage and Collection of Recyclables Required

Construction Waste Management 75% 2

Recycled Content 20% 2

81%
Construction Debris Recycled

It has been said that almost everything we throw away can be recycled. At the Haas Innovations Center, the concept of recycling was approached in several ways: Use of recycled products during construction, recycling of construction debris, and promoting recycling by the end users.

Materials made from recycled products were selected during design and documented during construction. As a result, over 33% of the total materials used on this facility were manufactured from post-consumer and pre-consumer recycled products.

Recycling construction debris turned out to be both surprising and satisfying. According to the contractor, the waste was easier to recycle than expected and the volume was significantly higher than they realized. Of the total construction waste for this project, 81% was recycled. By weight, over 67 tons of waste was diverted from landfills.

The third approach was to encourage employees and visitors to recycle. To make recycling easy, collections points are placed in strategic locations. As a result, employees collect post-consumer recycled content that could find its way into the manufacture of new building products, and our next Sustainable project.

## Indoor Environmental Quality

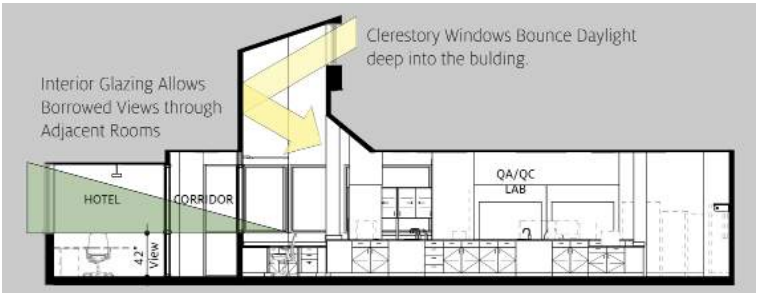
**LEED IEQ CREDITS ACHIEVED 12/15**

| | |
|---|---|
| Minimum IAQ Performance | Required |
| Environmental Tobacco Smoke Control | Required |
| Outdoor Air Delivery Monitoring | 1 |
| Increased Ventilation | 1 |
| Construction IAQ Management Plan | |
| During Construction | 1 |
| Low Emitting Adhesives/Sealants | 1 |
| Low Emitting Paints and Coatings | 1 |
| Low Emitting Composite Wood | 1 |
| Indoor Chemical and Pollutant Source Control | 1 |
| Controllability of Lighting | 1 |
| Controllability of Thermal Comfort | 1 |
| Thermal Comfort, Design | 1 |
| Thermal Comfort, Verification | 1 |
| Daylight for 75% of Spaces | 1 |

Through measures such as improved air quality, daylight, and outdoor views, research shows a reduction in the rate of employee absenteeism, improved states of well-being, and a boost in performance.

The design of the Haas Innovations Center emphasized an open visibility between spaces and to the outside. The borrowing of views through adjacent rooms allows employees to maintain a connection to the outdoors and to each other.

Daylighting was also emphasized. Over 75% of the regularly occupied spaces in the building are lit by natural light. Light is brought deep into the building by light wells with clerestory windows, translucent skylights, and a few tubular skylights in areas that were difficult to reach using conventional methods.



| LEED 2009 NC CREDITS ACHIEVED | |
|---|---|
| Site | 23/26 |
| Water | 5/10 |
| Energy | 15/35 |
| Materials | 4/14 |
| Indoor Quality | 2/15 |
| Innovation | 6/6 |
| **TOTAL** | **65 Points** |
| Minimum for LEED Gold | 60 |

## Design Team

KDA Architecture

Kramer Gehlen and Associates, Structural Engineer

Notkin Engineering, Mechanical Engineer

Sparling Engineers, Electrical Engineer

Huibregtse Louman Associates, Civil Engineer

The Berger Partnership, Landscape Architect

KEMA, LEED Consultant

## General Contractor

VK Powell Construction Company, LLC

# Firm Profile

**Principals**
Rod Knipper, AIA
Dennis W. Dean, AIA
Brian J. Andringa, AIA

**Location**
1310 North 16th Avenue
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KDA Architecture embraces the value of strong conceptual design as an integral component of creating memorable environments. We are convinced that well designed projects have long-term benefits for our clients and their users. Our standard is to create architecture and interior environments that are inspiring and functional, and have a positive impact on the community.

Established in 1973, KDA Architecture is an award-winning provider of professional design services. While the firm has been involved in projects around the world, we primarily serve clients throughout the Pacific Northwest. With four principals and 25 staff members, we have the ability to handle multiple projects and are available to meet your schedule requirements.

## Client/Architect Relationships

A long-term client/architect relationship has tremendous value. It provides an opportunity to obtain a thorough understanding of your facility and staff. Once trust and confidence are established, design decisions are arrived at quickly and efficiently, saving both time and resources. At KDA Architecture we strive to provide expert service that will meet all of your architectural needs, for projects of all sizes.

## Team Approach

It is the responsibility of principals and project managers to select team members and consultants based on their unique strengths and requirements of the job. Our staff is well-educated and has many years of experience in programming, planning, interiors, equipment coordination, and construction. This multi-level experience and team approach provides clients with a sound decision-making process that results in the best possible design solution.

A minimum of two highly experienced staff members are assigned to every project, regardless of size. This method assures that the client will always have access to an individual who understands their concerns when decisions need to be made quickly.

## Design Philosophy

Meeting your requirements with innovative design solutions is our first goal. Whether your project is new construction, renovation, or an addition, we work hard to be sure it functions smoothly, meets code requirements, fits well with the site, and complements existing structures.

Our staff understands the value of efficiency and works with you to maximize the potential of your project while developing solutions that uniquely address your needs. Our focus is to give every client excellent service. You will know your project is successful when you see the excitement and appreciation it generates, and the positive effect it has on the people who use it.

**ARCHITECTURAL SERVICES**
Architectural Design
Interior Design
Cost Estimation and Analysis
Project Management

**FACILITY PLANNING SERVICES**
Feasibility Studies
Site Selection
Space Planning
Predesign
Master Planning
Cost Control
Permit Approvals

**PROGRAMMING**
Space Programming
Space Planning
Systems Review
Wayfinding

**CONSTRUCTION SERVICES**
Construction Administration
Equipment Coordination
Site Observation

# Commercial and Industrial Facilities

**Tieton Cider Works,** *Tieton, WA*

Design for new tasting room, 2014

**The Dolsen Companies,** *Yakima, WA*

- Agro Fresh Roof Replacement; 2014
- Addition to Coca Cola building for corporate office; 4,431 SF; 2013

**Mercer Estates Winery,** *Prosser, WA*

New tasting room; 11,600 SF; 2009

**Lee Frank Mercantile,** *Tonasket, WA*

New hardware store; 2006

**Boys Smith Vision Center,** *Ellensburg, WA*

Addition and renovation: New retail sales area for existing ophthalmology clinic; renovation 6,732 SF; addition 4,600 SF; 2004

**Shields Bag and Printing Company,** *Yakima, WA*

Design for new four story corporate office building; 47,500 SF; 2005

**Hood River Distillers,** *Hood River, OR*

- Tank farm addition; bonded storage; loading dock; relocation of compressors; and numerous small projects; 2001–2008
- Master plan: for modifications to industrial plant and showroom design; 2005

**Grand Meridian Theater,** *Ellensburg, WA*

New eight theater cinema; 37,355 SF; 2004

**Reichert's Showhouse,** *Othello, WA*

Theater expansion; 2,030 SF; 2005

**Kentucky Fried Chicken Outlets**

Renovations and adaptation of prototypical plan in Yakima, Kennewick, Ellensburg, and Sunnyside, WA; 2003

**The Capitol Theatre,** *Yakima, WA*

Master plan and site development plans including upgrades, renovations, and expansion; 2003

**Yakima Herald Republic,** *Yakima, WA*

- Design for storage expansion, 2014
- Major interior remodel to lobby, administration and work areas including mechanical and electrical upgrade, interior design, and artwork selection; 1998
- Addition to mail room with minor additions to the 3,400 SF distribution area; 5,000 SF; 1996

**A & B Plastics,** *Yakima, WA*

Design of a plastics extruding facility for the American Filtrona Corporation; 131,500 SF; 1997

**Walla Walla Union Bulletin,** *Walla Walla, WA*

Addition to packaging/receiving area and renovation of press room; 4,000 SF; 1996

**USDA Laboratory,** *Parker Heights, WA*

Facility designed for the US Department of Agriculture to house the insect research laboratory and create an environment that interfaces with the public. $10M; 131,500 SF; 1994

**Pangborn Memorial Airport,** *Wenatchee, WA*

New air terminal incorporating all aspects of arrival and departure functions; 16,000 SF; 1992

**Yakima Valley Credit Union,** *Yakima, WA*

- Administration office remodel
- New two-story facility; 22,000 SF; 1986

**Ellensburg Daily Record,** *Ellensburg, WA*

Renovation of previously modernized exterior to reflect historic flavor of neighboring buildings; 1985

**Yakima Valley Bank,** *Yakima, WA*

Functional site and floor plans with use of low maintenance construction materials, passive solar, and daylighting concepts; 8,500 SF; 1982

**Jarms Building,** *Yakima, WA*

Professional office building featuring passive solar concepts and natural daylighting; phase one, 1974; phase two, 1976

**Lake Aspen Office Park,** *Yakima, WA*

New construction; 1976-2014
Lake View Spine, 2012; Water's Edge, Memorial's Pain Relief Institute; 16th Avenue Station, Occupational Health Facility, 2004; State Farm Insurance Building, 1986; Restaurant and Office Building, 1984; Restaurant and Office Building, 1984; Schlessinger Medical Clinic, 1980; Fred S. James & Co. Insurance, 1978; Smith Phillips DiPietro Advertising, 1978; KDA Architecture, 1977; Federal Land Bank, 1976